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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,850	03/22/2004	Joel M. Petersen	WVFRNT.003A	1716

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EXAMINER

Chang, Audrey Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/805,850	Applicant(s) PETERSEN ET AL.	
	Examiner Audrey Y. Chang	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29, 40 and 48-59 is/are pending in the application.
- 4a) Of the above claim(s) 29 and 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 48-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **August 1, 2006** has been entered.
2. This Office Action is also in response to applicant's amendment filed on August 1, 2006, which has been entered into the file.
3. By this amendment, the applicant has amended claims 1, 22, 27-28, has canceled claims 30-39, 41-47 and has newly added claims 48-59.
4. Claims 29 and 40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 9, 2005.
5. Claims 1-28, and 48-59 remain pending in this application.
6. The applicant is respectfully noted that when filing continued examination under 37 CFR 1.114, the invention sought for patent cannot be changed. The claims submitted in with the request for continued examination have been changed from the optical elements that "cooperate to produce an image" (wherein image has to be pre-stored in the optical elements in order to do so) to optical element that creates image from *an object* placing in front of the optical elements, (like mirror). The claimed subject matters have been completely changed because the optical elements behave completely different in the two situations. Strictly speaking the amendment should not be entered because of the changing of the claimed subject matters. However, it seems that the claims originally filed were incorrect in presenting the invention; the examiner therefore decides to enter the amendment.

Response to Amendment

7. **The amendment filed on August 1, 2006** is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Claim 1 has been amended to include the phrase that “a plurality of optical elements comprised of microscopic ring pattern”. The specification fails to disclose that the optical elements being holographic optical element has “microscopic ring patterns”.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. **Claims 4 and 56 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The reasons for rejection based on newly added matters are set forth in the paragraph above.

10. **Claims 1-28 and 48-59 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The **amended claim 1** and the **newly added claim 49** recite that the “plurality of optical elements ... that *cooperate* to produce an image” and “when a viewer or (an object) disposed with respect to the surface *multiple images of the object* are formed at different distance from the surface”. The specification fail to teach how could the optical elements at one hand cooperate to produce an image, (which means the image has to be pre-stored in the optical elements), yet at the other hand behaves as optical elements such as mirror to produce image of an object. This two functions simply do not co-existing since in order for the optical elements to have *focal function and focal length*, itself would not produce image, or if they are elements that with pre-stored images (such as hologram) then it does not behave as a mirror to form an image of an object disposed in front of it. The focal powers of the optical elements WILL NOT make them “corporate to produce an image”.

The **newly added claim 53** recites the phrase “such that portions of the surface appear to be closer to a viewer than other portions of the surfaces”. The specification fails to teach how could the portions of the surface would be appeared to be closer or not to the viewer since the specification simply fails to disclose what is the structure that allows the light from the surface to “appear to be closer” to the observer. The optical elements are claimed to be formed “in the surface” if the optical elements are capable to focus light, to the most it will form different focal points of light, it will not form images of the different portions of the surface which therefore is impossible to have “different portions of the surfaces to appear closer to the observer”.

With regard to claims 52 and 59, the specification and the claims fail to teach the essential requirement and elements for causing the opposite direction movement of the object and the images of the object.

These claims are therefore non-enabling by the disclosure of the claims.

Claim Objections

11. Claims 1-28, and 48-59 are objected to because of the following informalities:

(1). The phrase “a plurality of optical elements comprised of microscopic ring patterns” recited in claim 1 is confusing and indefinite since it is not clear if each of the optical element has a microscopic ring pattern or the plurality of the optical elements form ring patterns? What is considered to be ring pattern?

(2). The phrase “when a viewer is disposed with respect to the surface” recited in claim 1 and the phrase “when an object is disposed with respect to the surface” recited in claim 49 is confusing and indefinite since claims 1 and 49 each claims an “optical product” and it is not clear if the “viewer” and the “object” are part of the “optical product” or not. The scopes of the claims therefore are not clear. The phrase “when” is conditional phrase which makes not clear if the phrase follows the term “when” is not is not part of the claims.

(3). The phrase “substantially similar” recited in claim 22 is confusing and indefinite since it is not clear to what degree is this “substantially similar” referred to.

(4). The phrase “said pattern” recited in claim 24 is confusing and indefinite since it is not clear which pattern is this pattern referred to.

(5). Claim 28 is really confusing; it is not clear what is considered to be a “central ring-shaped optical surface”.

(6). The phrase “symmetric patterns” recited in claim 50 is confusing since it is not clear the symmetry is measured with respect to what?

(7). Claim 53 is complete confusing and the indefinite since it is impossible for the “portions of the surface” of the surface that the optical elements formed within to “appear” closer or not to the viewer.

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The optical elements by having the focal power will focus light to a focal point where no image of the surface or no recognition of the portions of the surfaces will ever be possible.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 1-24 and 48-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Gaudyn (PN. 4,492,442) in view of Keberlein (PN. 6,800,357).**

Gaudyn teaches a *projection arrangement* that serves as the *optical product* that is comprised of a *lens material* (10 Figure 1 or 58 and 60 in Figure 6) having a *surface* with a *plurality of facets* that have a *multiple focal points*, (please see column 1, lines 61-67), which implicitly means that the focal power for some of the facets are different from the other and when an object (14) is disposed in front of the lens material, an image or a multiple images of the object are formed at different focal positions, (pleases see Figures 1 and 6) to provide three-dimensional view of the object. One skilled in the art must understand that in order to produce three-dimensional image for a three-dimensional *extended object*, different part of the object has to be focused at *different focal positions* by the multi-focal facets.

With regard to claims 2-3, 48, and 54-55, Gaudyn teaches that the facets are of Fresnel lenses having *concentric ring patterns*, (please see column 1, lines 52-67 and Figures 5A). A Fresnel lens is diffractive optical element in nature.

This reference however does not teach explicitly that the optical elements or facets “cooperate to produce an image”. It is not clear how could the optical elements for forming images of an object, (like a mirror) are capable of forming an image together. However **Keberlein** in the same field of endeavor teaches to *arrange* a plurality of Fresnel optical elements to form a macroscopic pattern as a geometric recognizable shape, such as a star, for the benefit of providing decorative three-dimensional pattern using the Fresnel lens elements. It would then have been obvious to one skilled in the art to apply the teachings of **Keberlein** to modify the Fresnel facets of **Gaudyn** to also make to optical Fresnel facets form certain geometric pattern to provide additional decorative 3D visual effect.

With regard to claim 53, these references do not teach explicitly that different portions of the *surface* that with the plurality of optical elements formed therein appear to be closer to a viewer for some of them as compared to other. However both Gaudyn and Keberlein teaches that the Fresnel elements are placed in front of a reflective surface, wherein by having different focal power and focal points for the facets, the reflective light from different portions of the reflective surface will be focused at different points which makes some portion of the reflective surface closer than the other as viewed by an viewer.

With regard to claims 4 and 56, these references do not teach explicitly that the optical elements can also be holographic optical elements, however Fresnel lens being diffractive in nature suggests that the element can also be formed holographically to make them holographic optical elements, for the benefit of having an accurate wavelength and angular selectivity to make the optical focal power for the elements more accurately created.

With regard to claim 5, both Gaudyn and Keberlein teach that the Fresnel lenses have positive focal length but it does not teach explicitly that they may also have negative focal length. However it is know in the art that an optical element having negative focal length will not be able to produce real image but will tend to *diverge* the incident light and makes a *virtual* image formed behind the plane of the optical element. It would then have been obvious to one skilled in the art to modify the Fresnel lenses of

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Gaudyn to make some of the lenses with negative focal length for the benefit of adding different decorative and aesthetic appearance for the product.

With regard to claims 6-8, Keberlein teaches that the pieces of the Fresnel lenses include a plurality of grooves, (16) and the grooves are formed with a depth between 2.54 micrometer to 12.7 micrometer, (please see column 4, line 58 to column 5, line 6). Although this reference does not teach *explicitly* about the spacing of the grooves to have the claimed values, but based on the fundamental diffraction theory it is known in the art that the spacing or period of the grooves determines the diffraction properties of the diffractive optical elements, (it is noted that a Fresnel lens is a diffractive optical element). The Fresnel lenses therefore either implicitly have the claimed spacing value for the purpose of diffracting visible range of light to make color graphic pattern or it is an obvious matters of design choices to one skilled in the art to make these Fresnel lenses having the spacing having the claimed values so that they are capable of diffracting visible light for making color appearing graphic design.

With regard to claims 9-10, the surface is substantially smooth on a *macroscopic* scale since the plurality of grooves are in the microscopic dimension and since Keberlein teaches that the multi-lens star graphic material may be applied to a carton box, (please see Figure 6), it is implicitly true the surface is substantially smooth for a region of 1 centimeter or larger.

With regard to claims 11-14, Gaudyn teaches that the arrangement has a transparent lens material (10, Figure 1) and a silvered reflective surface (12, Figure 1) that makes the image a reflective image. Keberlein teaches that the material comprises an elastomeric film (12, Figure 2) and a reflective layer (A) that is formed by aluminum or metallization (please see Figure 2 and column 2, and column 5, lines 7 to 36) such that the image reproduced are of reflective images.

With regard to claim 16, Gaudyn does not teach explicitly the type of material used to make the arrangement, however it must include standard materials used to make lens. Keberlein teaches that the elastomeric film may include polymeric, glass or plastic, (please see column 2, lines 34-40). It would

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then have been obvious to one skilled in the art to apply the teachings of Keberlein to use the particular material to make the arrangement for the benefit of using known standard material to make the Fresnel lenses. It also has been held that it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

With regard to claim 17, these references do not teach *explicitly* to include an adhesive however it is known in the art to use adhesive to make element adhere to object intended such modification would therefore have been obvious to one skilled in the art to make the multi-lens star pieces capable of being adhere to object intended to add decorative design to the object.

With regard to claim 18, these references do not teach explicitly to add a laminate over the surface however it is common practice in the art to add laminate or protective layer over misconstrued layer for the benefit of adding extra protection to the surface to prevent it from being damaged. Such modification would therefore have been obvious to one skilled in the art.

With regard to claims 19-20, Gaudyn does not teach explicitly if the arrangement comprises flexible or rigid sheet. Keberlein teaches that the material for embossing the Fresnel lenses, i.e. the elastomeric layer may include various materials that include rigid materials as well as flexible materials, (please see column 2, lines 36-46).

With regard to claims 21-24, 51 and 57-58, Gaudyn teaches that the plurality of facets comprises different focal power and focal points that allow three dimensional image of an three dimensional object be present by the arrangement. This requires the facets with similar focal points are adjacent to each other or next to each other. However it does not teach these optical facets form a pattern. Keberlein teaches that the Fresnel lenses are arranged into star pattern. It would then have been obvious modification and design choice to one skilled in the art to make facets of Gaudyn having similar focal

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length to be arranged to form a pattern such as the multilens star for the benefit of adding further visual effect to the arrangement.

With regard to claim 50, Gaudyn teaches that the Fresnel lens is of symmetric pattern, (please see Figure 5a).

With regard to claims 52 and 59, Gaudyn teaches that the arrangement comprises a silvered reflective surface (12, Figure 1) to make the created image of the object a reflective image. Based on the mirror property and the Fresnel lens property of the arrangement, the created image is in reversed direction such that the object and its image are moving in the opposite direction.

14. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Gaudyn and Keberlein as applied to claim 1 above, and further in view of the patent issued to Servatius et al (PN. 6,700, 712).

The optical arrangement that includes multiple facets of Fresnel lens with multiple focal points taught by Gaudyn in combination with the teachings of Keberlein as described for claim 1 above have met all the limitations of the claims.

These references however do not teach explicitly that the Fresnel facets are overlapping with each other. Servatius et al in the same field of endeavor teaches a multidimensional surface having different overlapping Fresnel patterns formed in the surface for adding decorative effect, (please see Figures 1-6, column 2, lines 15-18). It would then have been obvious to one skilled in the art to modify the plurality Fresnel facets of Gaudyn to make them overlapping with each other for the benefit of adding additional decorative effect to the arrangement.

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Response to Arguments

15. Applicant's arguments with respect to claims 1-28 and newly submitted claims 48-59 have been considered but are moot in view of the new ground(s) of rejection.

16. Applicant's arguments are mainly based on the newly amended and added claims that have been fully addressed in the paragraphs above.

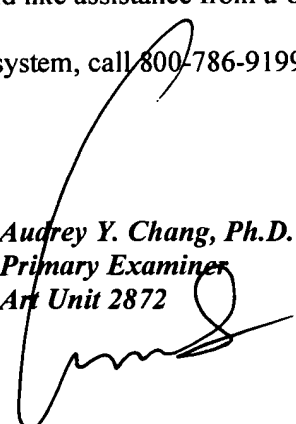
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.